

WHAT IS CLAIMED IS:

1. A pitting and slicing apparatus, including:
 - a frame;
 - 5 a drive shaft rotatably mounted to the frame;
 - a pitting assembly coupled to the drive shaft and the frame and including pairs of pitting and coring knives, wherein each of the pairs includes a cam-driven pitting knife and a cam-driven coring knife aligned with the pitting knife, and the pitting assembly is configured to extract a pit from a fruit while translating the fruit along a segment of a circular first path, thereby producing a pitted fruit, and then to retract the pitting knife with the pitted fruit impaled thereon to a location along an at least substantially circular second path parallel to but separated from the first path; and
 - 10 a slicing assembly including a pocket assembly fixedly coupled to the drive shaft, a knife holder fixedly mounted to the frame, and a set of spring-biased slicing knives pivotably mounted to the knife holder, wherein the pocket assembly defines pockets configured to receive articles of fruit that have been pitted by the pitting assembly, wherein one of the pockets is positioned and configured to receive the pitted fruit and to translate said pitted fruit along a segment of the second path past the slicing knives such that the slicing knives engage with and slice the pitted fruit,
 - 20 wherein the slicing knives are spring-biased in a first orientation relative to the knife holder with freedom to pivot away from the first orientation in response to force exerted thereon by debris carried by the pocket assembly and then spring back into the first orientation.
- 25 2. The apparatus of claim 1, wherein the frame defines a first cam track and a second cam track, the pitting knives are coupled to the drive shaft and the first cam track such that rotation of the drive shaft causes the pitting knives to translate around the drive shaft while advancing and retracting parallel to the drive shaft, and the coring knives are coupled to the drive shaft and the second cam track such that rotation of the drive shaft causes the coring knives to translate around the drive shaft while advancing and retracting parallel to the drive shaft, and wherein the pitting assembly includes:
 - 30 a plate fixedly attached to the drive shaft and defining pitting cups in positions such that rotation of the drive shaft causes the pitting cups to translate along the first path around the drive shaft, wherein each of the pitting cups defines an orifice sized to

admit one of the coring knives as said one of the coring knives retracts away from the fruit and then to admit the pit as said pit is ejected from the fruit by the pitting knife aligned with said one of the coring knives.

5 3. The apparatus of claim 1, wherein the knife holder includes:
a subassembly to which the slicing knives are pivotably mounted;
a block through which at least one threaded hole extends; and
at least one mounting screw, wherein the subassembly defines at least one
additional threaded hole alignable with said at least one threaded hole, and wherein the
10 mounting screw is configured to be insertable through one said threaded hole into one
said additional threaded hole to mount the block and the subassembly to the frame.

 4. The apparatus of claim 3, wherein the subassembly includes:
a second block;
15 a plunger slidably mounted to the second block; and
a spring coupled to the plunger, wherein the spring in a first state biases the
plunger in a first position in which the plunger protrudes partially out from the second
block, and the plunger has freedom to slide into the second block away from the first
position while displacing the spring away from its first state and then to spring back to
20 the first position in response to spring force exerted thereon by the spring as the spring
relaxes to the first state.

 5. The apparatus of claim 4, wherein the subassembly is configured to allow
convenient adjustment of the first position in which the spring biases the plunger
25 relative to the second block.

 6. The apparatus of claim 5, wherein the second block defines a cavity
extending through said second block, and the subassembly also includes:
a shaft having a distal end attached to the plunger, a free end extending out from
30 the second block, and a central portion between the distal end and the free end, wherein
the central portion extends through the cavity; and
a locking nut adjustably coupled to the shaft's free end.

 7. The apparatus of claim 1, wherein the knife holder includes:

a first assembly to which the slicing knives are pivotably mounted;
a second assembly configured to mount the first assembly adjustably to the
frame.

5 8. The apparatus of claim 7, wherein the first assembly includes:

a block;

a plunger slidably mounted to the block; and

a spring coupled to the plunger, wherein the spring in a first state biases the
plunger in a first position in which the plunger protrudes partially out from the block,
10 and the plunger has freedom to slide into the block away from the first position while
displacing the spring away from its first state and then to spring back to the first
position in response to spring force exerted thereon by the spring as the spring relaxes
to the first state.

15 9. The apparatus of claim 8, wherein the first assembly is configured to allow
convenient adjustment of the first position in which the spring biases the plunger
relative to the block.

20 10. The apparatus of claim 9, wherein the block defines a cavity extending
through said block, and the first assembly also includes:

a shaft having a distal end attached to the plunger, a free end extending out from
the block, and a central portion between the distal end and the free end, wherein the
central portion extends through the cavity; and

a locking nut adjustably coupled to the shaft's free end.

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11. The apparatus of claim 10, wherein the fruit is an olive.

12. The apparatus of claim 7, wherein the fruit is an olive.

30 13. The apparatus of claim 1, wherein the fruit is an olive.

14. A method for pitting and slicing a fruit, including the steps of:

(a) advancing a pitting knife and a coring knife into engagement with the fruit;

(b) while translating the fruit along a segment of a circular first path, ejecting a pit from the fruit while the pitting knife is engaged with the fruit and retracting the coring knife away from the fruit;

5 (c) after step (b), retracting the pitting knife with the pitted fruit impaled thereon, thereby moving the pitted fruit along an at least generally helical path to a point along an at least substantially circular second path parallel to but separated from the first path; and

10 (d) after step (c), translating the pitted fruit along a segment of the second path past a set of spring-biased, pivotably mounted slicing knives in such a manner that the slicing knives engage with and slice the pitted fruit, wherein the slicing knives are spring-biased in a first orientation and have freedom to pivot away from the first orientation and then spring back into the first orientation.

15 15. The method of claim 14, wherein the fruit is an olive.

16. The method of claim 14, wherein during step (d) at least one of the slicing knives engages the pitted fruit while said pitted fruit is impaled on the pitting knife and the slicing knives finish slicing the pitted fruit after the pitting knife has retracted away from the pitted fruit.

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17. The method of claim 16, wherein the fruit is an olive.

18. A method for pitting and slicing a fruit having a pit, including the steps of:

25 (a) advancing a pitting knife and a coring knife aligned therewith into engagement with the fruit, thereby causing the coring knife to core one tip of the fruit;

30 (b) advancing the pitting knife to push the fruit against a pitting cup, said pitting cup having an pit-receiving orifice extending therethrough, and continuing to advance the pitting knife while the fruit is constrained by the pitting cup to push the fruit's pit through the pit-receiving orifice and retracting the coring knife away from the fruit and the pitting cup, thereby converting the fruit to a pitted fruit;

(c) after step (b), retracting the pitting knife with the pitted fruit impaled thereon, thereby pulling the pitted fruit into a slicing pocket defined by a chuck plate assembly; and

(d) translating the pitted fruit in the slicing pocket into engagement with a set of spring-loaded slicing knives and retracting the pitting knife out of engagement with the pitted fruit, thereby causing the slicing knives sever the pitted fruit into slices.

5 19. The method of claim 18, wherein the fruit is an olive.

20. The method of claim 18, wherein during step (d) at least one of the slicing knives engages the pitted fruit while said pitted fruit is impaled on the pitting knife and the slicing knives finish slicing the pitted fruit after the pitting knife has retracted away
10 from the pitted fruit.

21. The method of claim 20, wherein the fruit is an olive.

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